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ABSTRACT

Understanding the quality of the day care environment is useful for practitioners and policymakers in the evaluation and improvement of day care provisions. Regulated features, interactive dimensions and global indices of quality have been examined in relation to child developmental outcomes. This study investigated the effects of variations in the day care environment on linguistic and social-emotional development of preschool children in Singapore in order to answer the following questions: (1) Are there environmental differences in day care centers in Singapore? (2) How are differences in characteristics of the day care environment related to children's linguistic and social-emotional development? (3) What are the effects of day care quality on children's development after taking home background into account? The subjects were 122 children, ages 49 to 72 months, enrolled in full-day care and randomly selected from 16 centers. Subjects completed pre- and posttests consisting of academic, linguistic, and social-emotional assessments. The results indicated that center quality and specific subscales as measured by the Early Childhood Environment Rating Scale (ECERS) predict some linguistic and social-emotional outcomes of children. (MOK)

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Effects of Day Care Environment in Singapore

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ABSTRACT

The purpose of this study was to investigate the effects of variations in the day care environment on linguistic and social-emotional development of preschool children in Singapore.

This study examined the differences in characteristics of the environment among 16 day-care centers. The day care environment was assessed by the Early Childhood Environment Rating Scale, ECERS (Harms & Clifford, 1980) which yields a total center 'quality' score and seven subscale scores. These consist of assessments of personal care routines, furnishings and display, language-reasoning experiences, fine and gross motor activities, creative activities, social development and adult needs provided in day-care centers. The ECERS was validated in Singapore and discriminant validity established. Reliability was obtained before proceeding with the assessment of the day-care environments.

A pre-test, consisting of academic, linguistic and social-emotional assessments, was conducted on 122 preschool aged children at the beginning of the year and a post-test administered towards the end of the year. Data analysis was conducted by regressing these outcomes on measures of the day care environment. Child characteristics and home background variables were included in the analysis to control for possible confounding of the effects of day care environment on children's outcomes.

Results indicate that center 'quality' and specific subscales as measured by the ECERS predict some linguistic and social-emotional outcomes of children.

Keywords: day care environment, day care quality, preschool

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INTRODUCTION

Recent moves to investigate the 'quality' of day care environment have been useful for practitioners and policy-makers in the evaluation and improvement of day care provisions. Regulatable features (adult-child ratio, group size and caregiver training), interactive dimensions (adult-child interaction, child activities) and global indices of 'quality' have been examined in relation to child developmental outcomes. These features have been identified to have contributed positively to child outcomes. (McCartney, 1987; Whitebook et al 1989, Goelman & Pence, 1987, Schliecker, White & Jacobs, 1991; Dunn, 1993).

In Singapore, the move to improve the country's economy through industries, tourism and finance saw an increase in labour participation by the 1980s. Parents are given incentives to enrol their children into day care centers so that mothers can opt to work. This created a 100% increase in enrollment of children in day care centers between 1984 and 1994. Centers are required to open from 7 am to 7 pm during the weekdays if there is a need and it is possible for children to have a 12-hour day away from home. It is therefore, important to ensure that 'quality' education and care are provided for these children.

The purpose of this study was to investigate the effects of variations in characteristics of the day care environment on children's linguistic and social-emotional development.

RESEARCH QUESTIONS

1. Are there environmental differences in day care centers in Singapore?
2. How are differences in characteristics of the day care environment related to children's linguistic and social-emotional development?
3. What are the effects of day care 'quality' on children's development after taking home background into account?

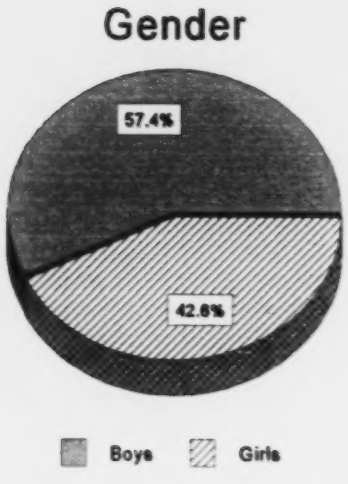
METHOD

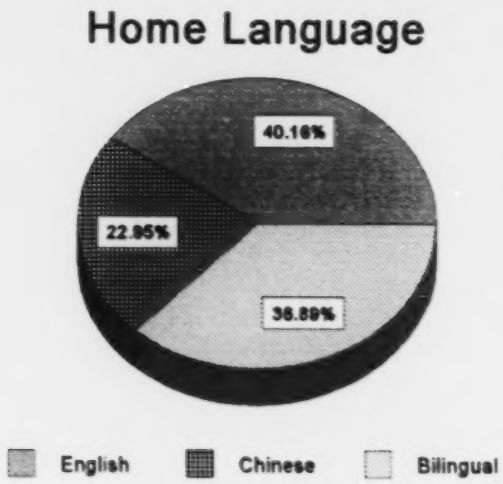
1. The Centers

To ensure variation in the sample of centers, a stratified random sampling procedure was used. This was done by using two expert judges to stratify the population of 329 day care centers according to 'high' and 'not high' standards of provisions. Proportionate random sampling of centers was conducted by type of administrative authority. This resulted in 16 centers, eight 'high' and eight 'not high'.

2. The Children

A total of 122 children was randomly selected (eight each) from the 16 centers. The age ranged from 49 to 72 months. All were enrolled in full-day care.





3. Early Childhood Environment Rating Scale, ECERS (Harms & Clifford, 1980)

This scale was used to measure day care environment. It has a total 'quality' score and seven subscales:

Personal and care routines
Furnishings and display
Language-reasoning experiences
Fine and gross motor activities
Creative activities
Social development
Adult needs

Two 'blind' observers rated the 16 centers at the beginning of the study. Observer reliability was achieved between 0.80 and 0.89.

4. Child Development Assessments

For **cognition**, the British Ability Scales (Elliott, 1984) was used to obtain IQ as baseline data.

For **language**, subscales from the British Ability Scales were used: verbal fluency, verbal comprehension and word reading

For **social-emotional**, subscales from the Classroom Behaviour Inventory (Schaefer & Edgerton, 1978) were used: considerateness, extraversion, independence and creativity/curiosity

A pre-test was conducted on the children at the beginning of the school year and a post-test nine months later.

5. Home Background Information

Questionnaires were sent home to mothers to obtain demographic data, frequency of reading at home and doing home work (i.e., using academic workbooks) with child. Parents' child rearing values were also assessed.

DATA ANALYSIS STRATEGY

Step 1

Center effects were established on child outcomes with child characteristics and mothers' education taken into account.

Step 2

Each child outcome was regressed on pre-test score, child characteristics, mothers' education and center 'quality'.

Step 3

Using concise model obtained from step 2, each child outcome was regressed on different aspects of center 'quality'.

Step 4

Each child outcome was regressed on pre-test score, child characteristics and home background variables.

Step 5

Each child outcome was regressed on significant home background variables and aspects of center 'quality'.

RESULTS

Table 1
Differences in the ECERS Subscales of Centers Judged by Experts to be of Differing 'Quality'

	'High Quality'[1] Centers		'Not High Quality' Centers			
ECERS Subscales	Mean	S D	Mean	S D	P	Range of scores[2]
Personal & Care	3.53	0.21	3.15	0.75	0.36	2 - 4
Furnishings & Display	2.88	0.72	2.65	0.75	0.46	1.8 - 4.4
Language-reasoning	3.38	0.87	2.13	0.92	0.03*	1 - 4.75
Fine & Gross Motor	3.77	0.54	3.56	0.52	0.48	2.67 - 4.83
Creative Activities	3.79	0.47	3.25	0.68	0.06	2.57 - 4.29
Social Development	2.98	0.53	2.29	0.42	0.02*	1.83 - 3.83
Adult Needs	3.25	0.42	3.03	0.39	0.30	2.25 - 4
Total	3.39	0.36	2.91	0.42	0.04*	2.51 - 3.95

Note: Mann-Whitney U analysis was used, non-parametric, N=16 centers.
[1] Singaporean expert-judged centers
[2] Possible range of scores for ECERS is a minimum of 1 and maximum of 7.

Table 2
Summary of the Effects[1] of of ECERS Subscales on Child Developmental Outcomes

	Language Outcomes[2]		Social-emotional Outcomes			
ECERS	Verbal Fluency	Word Reading	Considerate-ness	Creativity/ curiosity	Extraver-sion	Indepen-dence
Center 'Quality'	0.29**		0.15*	0.17+		
Lang-reason	0.26**			0.33**		0.13+
Creative Activity	0.23**			0.22*		
Fine & Gross			0.17*	0.17*	0.17*	
Social Dev	0.32**		0.16*	0.19*		0.14*
Personal & Care	0.29**	0.12*	0.20**	-0.17*		
Furnish Display	0.24**					
Adult Needs	0.21*	0.14*				

* p<0.05 ** p<0.01 + p<0.10

[1] Cohen's (1977) effect size classificatory scheme: 0.02=small, 0.15=medium, 0.35=large

[2] Verbal comprehension was omitted as center effect was not established.

Table 3

Summary of the Effects[1] of Home Background on Child Developmental Outcomes

	Language Outcomes			Social-emotional Outcomes			
Home Back-ground	Verbal Fluency	Verbal Compre-hension	Word Reading	Consider-ateness	Creativity/ curiosity	Extraver-sion	Indepen-dence
Reading					0.19+		
Home Work					-0.18+	-0.19*	
Confor-mity[2]		1.00**				-0.75*	
Self-direction[2]		1.28**					
Social[2]		0.72**		0.43*		-0.48*	

* p<0.05 **p<0.01 +p<0.10

[1] Cohen's (1977) effect size classificatory scheme: 0.02=small, 0.15=medium, 0.35=large

[2] Parental child rearing values

Table 4

Comparing the Effects[1] before and after taking Home Background into account

	Social-emotional Outcomes[2]					
	Considerateness		Creativity/curiosity		Extraversion	
ECERS	Without home	With home	Without home	With home	Without home	With home
Center 'Quality'	0.15*	0.12+	0.17+	0.14 (n.s.)		
Language-reasoning			0.33**	0.30**		
Creative Activities			0.22*	0.18*		
Fine & Gross	0.17*	0.16*	0.17*	0.13 (n.s.)	0.17*	0.13*
Social Develop	0.16*	0.14*	0.19*	0.15*		
Personal & Care	0.20**	0.18**	-0.17*	-0.16*		
Furnishings & Display						
Adult Needs						

* $p<0.05$ ** $p<0.01$ + $p<0.10$

[1] Cohen's (1977) effect size classificatory scheme: 0.02=small, 0.15=medium, 0.35=large

[2] Results in table 3 show that home background did not significantly predict verbal fluency, word reading and independence. Therefore, a re-analysis of the effects of the ECERS was not conducted. Although home background predicted verbal comprehension significantly, this outcome was omitted in the re-analysis as center effect was not established.

DISCUSSION

Discriminant validity was established for the ECERS through expert judgement of 'quality'. The results, in table 1, show a significant difference in total ECERS score between the two groups. The 'high quality' centers scored more in all aspects of the day care environment than the 'not high quality' centers.

The effect of some aspects of day care environment has been obtained for some child outcomes as shown in table 2. The magnitudes of these effects are not strong and range from small to moderate. However, they are positive effects with the exception of personal and care routines subscale on creativity/curiosity outcome.

The effect of home background, as shown in table 3, was significant for one language outcome; verbal comprehension and three social-emotional outcomes; considerateness, creativity/curiosity and extraversion. When the effects of day care on these outcomes were re-analysed taking significant home background variables into account, most of the center effects remained significant. However, the effects of center 'quality' and fine and gross motor activities on creativity/curiosity outcome were partialled out by home activities such as reading and homework.

This study has shown small to moderate effects of some aspects of day care 'quality' on children's development even after home background has been taken into account. It is difficult to conclude that these factors alone cause positive development and it is hoped that the results of this study act as a springboard to further research in day care effects in Singapore.

References:

Cohen, J., (1977). Statistical Power Analysis for Behaviour Sciences. New York: Academic Press.

Dunn, L. (1993). Proximal and distal features of day care quality and children's development. Early Childhood Research Quarterly, 8, 167-192.

Elliott, C.D. (1983). British Ability Scales. England: NFER-Nelson.

Goelman, H. & Pence, A. (1987). Effects of child care, family, and individual characteristics on children's language development: The Victoria day care research project. In Phillips, D.A. (Ed.), Quality in Child Care: What Does Research Tell Us? (pp. 89-104). Washington DC: National Association for the Education of Young Children.

Harms, T. & Clifford, R.M. (1980). Early Childhood Environment Rating Scale. Teachers College Press.

Phillips, D., Scarr, S. & McCartney, K. (1987). Dimensions and effects of child care quality: the Bermuda study. In Phillips, D.A. (Ed.), Quality in Child Care: What Does Research Tell Us? (pp. 43-56). Washington DC: National Association for the Education of Young Children.

Schaefer, E.S. & Edgerton, M. (1978). Classroom Behaviour Inventory, Preschool Form. Princeton, NJ: Educational Testing Service.

Schliecker, E., White, D.R. & Jacobs, E. (1991). The role of day care quality in the prediction of children's vocabulary. Canadian Journal of Behavioural Science, 23 (1), 12-24.

Whitebook, M., Howes, C., & Phillips, D. (1989). Who Cares? Child Care Teachers and the Quality of Care in America. Final Report National Child Care Staffing Study. Oakland, C.A.: Child Care Employee Project.